

**PRESERVATIVES IN FOOD AND THE EFFECT
THEREOF ON THE PUBLIC HEALTH ***

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It is well known that there is a wide difference of opinion among experts respecting the effect of certain chemicals added to foods as preservatives upon health. As is natural in such cases, there are two sides to the question, and it is attacked constantly from two points of view. The medical officer of health naturally looks at the use of preservatives solely from the effect which they have upon health; the manufacturer of food products looks at the use of preservatives solely from its relation to manufacture and trade. There is a third point of view which should be occupied by experts who look at the subject from a purely scientific point of view, that is, men who are not interested officially in conserving the public health, nor in any commercial way, in manufacturing. It is not meant in this paper that because a man is interested professionally in one side of a question, he fails to see the merits of all sides, nor is it maintained that the unbiased expert is any more able than either of the others to discuss the subject. The only contention in this case is that the report of the unbiased expert is likely to have more weight with the community, or with the court, than the testimony of the other experts, conceding that they all have equal merit. That experts should honestly arrive at opposite conclusions is not any matter of astonishment. The methods of conducting the investigation, the subjects on which the experiment is conducted and the points which are kept

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principally in view, the time over which the investigation is conducted, the quantities of the materials experimented with, all have their effect. The particular experimental work which is set forth in this paper was undertaken to show that a certain beverage, namely, cider, which is very commonly preserved in this country by the addition of benzoate of soda, might be manufactured of a better and superior quality, and kept without the addition of any preservative whatever. The work was conducted under my instructions in Nebraska, by one of my assistants, Mr. H. C. Gore. A detailed account of the experimental work is contained in his report, in which it is shown that, by the selection of the proper kind of fruit, by care in the crushing of the fruit and the expression of the juice, by passing the juice twice through a cream separator, and by sterilization, cider of extraordinary good quality was secured which, when enclosed in sealed cans, keeps indefinitely. It is also shown that it keeps for a very long time in barrels and other wooden containers, and, therefore, that the claims made by the manufacturers of this line of goods that cider cannot be made without the use of a preservative are baseless. As an addendum to this work, statistics are given of the opinions of experts on the advisability of using preservatives in foods.

In order to obtain the views of eminent physiologists and hygienists, health officers and physicians in the United States as to the propriety of using preservatives in foods, a list of questions was sent out from the Department of Agriculture, to which a large number of replies was received. These questions and the replies have been tabulated as follows :

1. Are preservatives, other than the usual condimental preservatives, namely, sugar, salt, alcohol, vinegar, spices and wood smoke, injurious to health?

Affirmative	218
Negative	33
Total	<u>251</u>

2. Does the introduction of any of the preservatives which you deem injurious to health render the foods injurious to health?

Affirmative	222
Negative	29
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Total	251

3. If a substance added to food is injurious to health, does it become so when a certain quantity is present only, or is it so in any quantity whatever?

Affirmative	169
Negative	79
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Total	248

4. If a substance is injurious to health, is there any special limit to the quantity which may be used which may be fixed by regulation or by law?

Affirmative	68
Negative	183
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Total	251

5. If foods can be perfectly preserved without the addition of chemical preservatives, is their addition ever advisable?

Affirmative	12
Negative	247
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Total	259

It can be readily seen from this tabulation that the opinions expressed point overwhelmingly to the fact that preservatives

as a class are injurious to health, and hence their use is, under the act, inhibited.

Other data are also given showing that the very commonly expressed opinion among manufacturers that chemical preservatives are a necessity to the trade is recognized. The relation of this investigation to the public health is patent. It is not claimed that chemical preservatives in any case are food products. If they take any part in metabolism, their influence is to disturb the normal processes unfavorably. They place upon the excretory organs an additional burden. Benzoic acid or benzoate of soda, the preservative specifically mentioned, is changed in the metabolic process principally into hippuric acid, thus adding an additional destructive product to the fluids of the body, the elimination of which is at once required to avoid the poisonous effects which it otherwise would produce. The trend of the argument is to show, therefore, that chemical preservatives have no place in food products.